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THE  
ONTARIO WATER RESOURCES  
COMMISSION

WATER POLLUTION SURVEY

of the

CITY OF NORTH BAY

1965

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CITY OF NORTH BAY - 1965  
DISTRICT OF NIPISSING

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Report on a water pollution  
survey of the city of North Bay.

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REPORT ON

A

WATER POLLUTION SURVEY

of the

CITY OF NORTH BAY

December 1965

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on a  
WATER POLLUTION SURVEY  
of the  
CITY OF NORTH BAY

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## R E P O R T

### ONTARIO WATER RESOURCES COMMISSION

#### INTRODUCTION

A water pollution survey was made of the City of North Bay on June 16, 17 and 18, 1965. The purpose of this investigation was to up-date the previous OWRC survey made during the month of June, 1961.

Surveys of this nature are conducted routinely and upon request throughout the Province of Ontario by the Ontario Water Resources Commission as a basis for evaluating any existing or potential sources of pollution.

Recommendations are made pertaining to water pollution abatement, and the Commission expects that corrective measures will be taken by those concerned.

#### RECOMMENDATIONS FROM OWRC REPORT OF JUNE 1961 AND ACTION TAKEN

<u>Recommendations</u>	<u>Action Taken</u>
1. As planned, action should be taken by the City of North Bay to remove the remaining municipal septic tanks from service, namely, at Main and Golf streets, near the west end of Gore Street, First Avenue, and at James Avenue and Queen Street.	The septic tanks have been removed from service and the waste flows have been directed to sanitary sewers.
2. The City of North Bay should locate and eliminate the sources of polluting material gaining access to the storm sewers as noted in this report.	A limited amount of work has been accomplished in this regard, but a major effort must be exerted if remaining sources of pollution are to be located and eliminated.

Recommendations

Action Taken

- |  |   |
|--|---|
| 3. The City of North Bay should speed up its programme of separating sanitary and storm flows.   | The municipality has, for the most part, obtained separation of the sanitary and storm flows. Work is continuing in this regard as the money becomes available.   |
| 4. Corrective measures should be taken by the Canadian Pacific Railway to prevent the access of wastes to Lake Nipissing. Consideration should be given to discharging liquid wastes to the municipal sewage works.  | This company has not implemented the corrections necessary to eliminate the discharge of liquid wastes to Lake Nipissing.   |
| 5. The Ontario Northland Railway should locate and eliminate the sources of organic wastes gaining access to the oil separator. Failing this, consideration be given to discharging the effluent from this separator to the municipal sewage works system. | Reportedly, the ONR has located and separated the sources of organic waste formerly gaining access to the oil separator. The organic wastes are discharged to the municipal sewage works system. The company has retained a consulting engineer to prepare a report on suggested improvements in the present method of treating the oil wastes. |
| 6. The Township of West Ferris should locate and eliminate waste discharges to the ditch on the west side of Kennedy Avenue, (Lakeshore Drive).  | The necessary action has been implemented to correct the above problem.   |

I GENERAL

The City of North Bay, having a 1964 assessed population of 23,349 (1965 Municipal Directory) is located on the east shore of Lake Nipissing. The city is drained either directly to Lake Nipissing or to tributaries of that waterway. Chippewa Creek, which is the



major stream, flows in a southerly direction to a point just north of Fisher Street where the direction changes to south-west, eventually discharging to Lake Nipissing. A tributary draining the north-east part of North Bay has its confluence with Chippewa Creek just north of Fisher Street.

Amelia Park, which is referred to in this report, is located on Lake Nipissing just north of James Avenue.

This municipality has experienced rapid industrial and residential development. Parts of the townships of Widdifield and West Ferris adjacent to the City of North Bay have experienced similar growth resulting in a large urbanized area with comparable water pollution problems.

## II WATER USES

### (a) Municipal Water System

The City of North Bay takes water from Trout Lake. Chlorination and fluoridation treatments are effected prior to pumping the water to the distribution system and storage.

Intake studies are being performed at this water works. Mr. S.J. Gore, P.Eng., Water Works Superintendent, is performing algae counts on samples of water collected from various depths. The results of this study seem to indicate smaller counts and different types of algae at lower depths. Water samples for algal identification and counting are obtained by means of polyethylene pipe with intake located at the 68 ft. level, 1,000 ft. from the shoreline. It is noted that

the present location of the intake for the North Bay water supply is at the 20 ft. level and 375 ft. from the shore.

(b) Private Water Systems

There are no known private water systems that would come under the OWRC Act, existing within the City of North Bay.

(c) Industrial Water Supplies

There are no known private water supplies serving industry located in North Bay.

(d) Recreational Uses

Considerable recreational activity occurs in Lake Nipissing. Fishing, swimming and boating are carried on in the lake adjacent to North Bay.

As far as it is known, no recreational activity occurs in Chippewa Creek.

(e) Agricultural Uses

It was reported that the surface-water supplies in North Bay are not used for agricultural purposes.

III WATER POLLUTION

(1) Sanitary Waste Disposal

(a) Existing Conditions - Sanitary wastes from the City of North Bay and parts of the townships of Widdifield and West Ferris are discharged via a system of collector sanitary sewers and sewage pumping stations to the North Bay Water Pollution Control Plant. This plant is situated on the east side of Queen Street between Regina and Monk streets, and is owned and operated by the Ontario Water Resources Commission.

The water pollution control plant, is of the activated

sludge type, with a total design capacity of 4 mgd. The treatment process consists of grit removal, solids grinding, primary settling, aeration, final settling and chlorination. Sludge treatment consists of two stage digestion with heating facilities and liquid sludge haulage.

The flow to the North Bay Water Pollution Control Plant during 1964 averaged 3.39 mgd as compared to 3.38 mgd in 1963. The flow exceeded the plant design flow of 4.0 mgd, 24 per cent of the time in 1964 as compared to 20 per cent in 1963.

The strength of the influent sewage during 1964 was normal, having an average BOD of 157 ppm and an average suspended solids content of 250 ppm. The plant efficiency for the year was consistent with design expectations for the activated sludge process, giving reductions of 90.5 per cent and 94.5 per cent in BOD and suspended solids content respectively.

Since the inception of the North Bay Water Pollution Control Plant, there have been two instances when, with the occurrence of extraordinary precipitation, flooding of basements has resulted. The problem has been discussed by the Local Advisory Committee composed of members from the townships of West Ferris and Widdifield, the City of North Bay and the Ontario Water Resources Commission. The OWRC recommended that a consulting engineer be retained to prepare a report on the suggested improvements necessary to eliminate this problem.

The Local Advisory Committee agreed with this recommendation.

(b) Waste Outlets - There are a number of water pollution problems in the City of North Bay associated with the discharge of industrial wastes and sanitary sewage from municipal storm sewer and private drains. These instances of waste discharges to the local watercourses are discussed under the designated sampling point numbers. The laboratory results of samples collected from the waste discharges are appended to this report in Table I and Table II. Approximate locations of the outfalls and stream sampling points are shown in the map included in the report.

Sampling Point No.

Discussion

LN-199.7 D

The 5-Day BOD of 22 ppm and 143 ppm suspended solids content in the effluent discharged from this 36 inch diameter oval corrugated storm sewer was in excess of the Commission objectives of 15 ppm for both concentrations. There were 13,400 coliform organisms per 100 ml. The estimated flow was 50 gpm.

LN-200.6 I

The 5-Day BOD and suspended solids content each of 22 ppm in the waste discharged from this 24 inch diameter corrugated outlet owned by the CPR was excessive. The estimated flow was 5 gpm.

LN-200.4 W-1

The 5-Day BOD and suspended solids content of the wastes flowing from the storm sewer were unacceptable for discharge to a watercourse. The estimated flow was 25 gpm.

LN-200.8 P-1	The total flow of approximately 1 gpm contained excessive concentrations of 5-Day BOD, suspended solids and coliform organisms.
LN-201.8 I	There were 43 ppm 5-Day BOD, 60 ppm suspended solids and 13.3 ppm ether solubles present in the waste discharged from the Judge Avenue storm sewer.
FC-0.8 WS	An odour characteristic of sewage was noted in the effluent from this outlet. The suspended solids and coliform concentrations were unsatisfactory.
FC-0.4 W	The effluent from this storm sewer was characteristic of raw sanitary sewage. The 5-Day BOD, suspended solids and coliform concentrations were all unsatisfactory.
FC-0.3 W	The waste contained excessive quantities of 5-Day BOD, suspended solids and coliform organisms. The flow was estimated at 2 gpm.
FC-0.3 I	The 5-Day BOD, suspended solids and coliform concentrations of the waste made it unacceptable for discharge to a watercourse.

In addition waste discharges from the following outfalls contained excessive concentrations of coliform organisms; LN-200.2 W, LN-200.6 P-1, LN-200.8 P-1, LN-200.9 I, LN-201.2 P, FC-1.2 W-1.

(2) Industrial Waste Disposal

An industrial water pollution survey was made during the month of July, 1965 in the City of North Bay, by the OWRC Division

of Industrial Wastes. The scope of the survey was to; (1) determine the amount and quality of industrial wastes discharging to natural watercourses, (2) indicate the necessary corrective measures that would have to be undertaken to meet the effluent quality objectives suggested by the OWRC for industrial waste control in Ontario.

Samples were collected from the waste discharged from eight of eleven industries visited. Four industries, namely; Canadian Longyear (Christensen Diamond Product (Canada) Incorporated), MacDonald and Sons Limited, Craig Bit Company, and the Ontario Northland Railway were found to be discharging raw and/or inadequately treated industrial wastes to Lake Nipissing. Reports have been prepared and directed to these industries recommending that the necessary corrective action be taken to eliminate these water impairment problems.

The Canadian Pacific Railway waste treatment facilities were inspected and it was concluded from the laboratory analyses, that the effluent appeared satisfactory for discharge to Lake Nipissing. Every effort should be made to maintain this waste quality.

### (3) Refuse Disposal

There is a garbage collection service provided for the residents of the City of North Bay. Municipal refuse is disposed of at a sanitary landfill site in the Township of Widdifield. The site appears satisfactory from a water pollution perspective.

#### IV TROUT LAKE WATER QUALITY STUDY

Complaints were received by this Commission regarding water quality impairment of Trout Lake. The OWRC conducted a water quality survey of the lake on June 17, 1965. The procedure followed in this survey was to collect samples from designated sampling points on Trout Lake. In most cases the samples were collected three feet below the water surface. The samples were submitted to the Ontario Department of Health, North Bay Laboratory Branch, for bacteriological examination.

The North Bay Area Health Unit conducted a sanitary survey of Trout Lake during the months of June, July and August, 1965. During this survey approximately 225 individual residences were visited and interviewed regarding source of water supply and method of sewage disposal. The information obtained revealed that a large percentage of the cottages visited depend on Trout Lake as a source of water supply. In most instances no treatment is provided.

Reportedly the health unit found only three cases of polluting wastes being discharged to the lake, and they have requested that proper sewage disposal facilities be installed.

The laboratory results of the 34 samples collected by the OWRC are appended to this report. All of the samples, when examined bacteriologically, revealed that in all instances there were fewer coliform organisms present than the OWRC objective of not greater than 2,400 coliform organisms per 100 ml. It could be concluded that the bacteriological quality of the water in Trout Lake was satisfactory.

V. NORTH BAY WATER POLLUTION CONTROL PLANT FLOW DIFFUSION STUDY

A study was made on August 18, 19 and 20, 1965 to determine the diffusion pattern of the North Bay Water Pollution Control Plant final effluent in Lake Nipissing. It was hoped that by studying the diffusion pattern, the effect it has on the bacteriological quality of the lake water could be determined. Of particular importance was the effect of the final effluent on the bacteriological quality of the lake water at Amelia Park Beach.

It is noted that at the time of this survey the WPCP chlorinator was not operative due to a mechanical failure. Regular practice at this plant includes the addition of chlorine to the final effluent to control the bacteriological quality.

In an effort to establish the diffusion pattern of the WPCP final effluent in Lake Nipissing, a dye "Rhodamine B" was used. The dye was added to the effluent and observations were made from a boat stationed on the lake at the approximate location of the outfall sewer discharge. The outfall terminates in about ten feet of water. On three different days a similar procedure was followed, and no trace of the dye was observed in the lake. This phenomena could probably be attributed to the dilution factor available making the detection of the dye by macroscopic means difficult.

Sampling surveys were conducted on three different days with samples being collected from designated sampling points on various ranges. Samples were collected from the surface and three feet below the water surface. The approximate locations of these sampling points are shown on the appended maps of the area.



The laboratory results of samples collected during this survey are included in tables 6, 7 and 8. In general it could be concluded that the bacteriological quality of the water at Amelia Park Beach was not deteriorated by the discharge of the treated wastes from the North Bay Water Pollution Control Plant. Probably a more significant factor on any deterioration of the bacteriological quality of the water at this beach is the poor quality of the water discharged from Chippewa Creek to Lake Nipissing just north of the beach.

This study did reveal a break in the outfall sewer immediately offshore. The OWRC Division of Plant Operations has been made aware of this situation and the pipe should be repaired in the near future.

#### VI. DISCUSSION OF LABORATORY RESULTS

The laboratory results of samples collected from the local watercourses and Lake Nipissing can be found in the tables appended to this report. These samples were collected on June 16, 17 and 18, 1965.

LN-198.4 D

Duchesnay River above confluence with Lake Nipissing. The 5-Day BOD and coliform organisms concentrations in the sample collected from the river were in excess of the OWRC objectives.

FC-2.6

Chippewa Creek at Highway No. 17. The 5-Day BOD and coliform organisms concentrations in the sample collected from the creek were within OWRC objectives.

FC-0.7	Chippewa Creek at John Street. There were 124,000 coliform organisms per 100 ml present in the sample collected from the creek at this point.
FC-0.0	Chippewa Creek at Queen Street. The samples collected from the creek at this point reveal the poor bacteriological quality of the water.

In addition six out of the 17 samples collected from Lake Nipissing on June 17, 1965 contained coliform organisms in excess of the OWRC objective.

#### VII SUMMARY

A water pollution survey was made of the City of North Bay on June 16, 17 and 18, 1965. Water quality surveys were carried out at Trout Lake and that part of Lake Nipissing in the immediate area of North Bay on June 17, 1965. A study was made on August 18, 19 and 20, 1965 of the North Bay WPCP final effluent flow diffusion in Lake Nipissing.

The OWRC Division of Industrial Wastes accomplished an industrial waste survey of the city during July, 1965. The survey revealed that four industries, Canadian Longyear (Christensen Diamond Product (Canada) Incorporated), MacDonald and Sons Limited, Craig Bit Company, and the Ontario Northland Railway were discharging inadequately treated and/or raw industrial wastes to Lake Nipissing. In addition the CPR industrial waste treatment facilities were inspected. The quality of the final effluent was found to be acceptable for discharge to Lake Nipissing. It is necessary, however, that the company continue to assure that the satisfactory quality of this final effluent is maintained.

The water pollution survey indicated that while the municipality was pursuing an active programme to abate water pollution, more work is required to achieve satisfactory water quality in the local watercourses and Lake Nipissing. The storm sewers, previously discussed in the report, are the principal sources of water pollution. The City of North Bay should institute a programme to locate the illegal connections to the municipal storm sewers.

The study of the North Bay WPCP final effluent flow diffusion in Lake Nipissing failed to show the diffusion pattern when the dye could not be detected. Samples collected from various ranges established on Lake Nipissing indicated that the WPCP final effluent was not responsible for the deteriorated bacteriological quality of the water at Amelia Park Beach. This problem could be attributed more to the poor bacteriological quality of the water discharged from Chippewa Creek. At the time of the study a break was located in the outfall sewer immediately offshore. The plant effluent was not being chlorinated during the survey due to the mechanical failure of the chlorinator. The necessary equipment should be available at the plant to assure the continuous chlorination of the final effluent from break-up of ice to freeze-up of the receiving body of water.

The water quality survey of Trout Lake revealed that the bacteriological quality of the lake water was excellent. The algae studies being performed by the water works superintendent indicated

that there was no serious problem of this nature. The North Bay Area Health Unit is maintaining a strict surveillance of the individual sewage disposal systems installed adjacent to Trout Lake. Important preventative action can be taken by the local municipal authorities by requiring preliminary lot approvals by the health unit. In this way no building is allowed to take place until the health unit has approved the lot suitable, assuring that proper sewage disposal can be effected.

An unusually heavy rainfall that occurred on August 9, 1965 resulted in the flooding of basements in a number of private homes. An engineering study is to be undertaken to determine means of minimizing basement flooding in the Queen Street area.

#### VIII RECOMMENDATIONS

1. The municipality should endeavour to locate and sever all illegal connections to the municipal storm sewers.
2. The four industries namely; Canadian Longyear (Christensen Diamond Product (Canada) Incorporated), MacDonald and Sons Limited, Craig Bit Company, and the Ontario Northland Railway should take the action necessary to eliminate the discharge of inadequately treated and/or raw industrial wastes to Lake Nipissing.
3. The Canadian Pacific Railway should continue to assure that the quality of the treated effluent is satisfactorily maintained.
4. The break in the North Bay Water Pollution Control Plant outfall sewer should be repaired.

5. Consideration should be given to providing chlorination of the North Bay Water Pollution Control Plant final effluent for disinfection purposes on a continuous basis.

6. A continuous programme of water pollution control should be instituted in the Trout Lake area.

All of which is respectfully submitted,

District Engineer

  
C.E. McIntyre, P.Eng.,

Approved by

  
J.R. Barr, Director.

Prepared by: Mr. D.A.M. Wilson,  
Engineer's Assistant.

## GLOSSARY OF TERMS

**Bacteriological Examinations** - The Membrane Filter technique is used to obtain a direct enumeration of coliform organisms. These organisms are the normal inhabitants of the intestines of man and other warm-blooded animals. They are always present in large numbers in sewage and are, in general, relatively few in number in other stream pollutants. The results are reported as M.F. coliform count per 100 millilitres.

**Biochemical Oxygen Demand (BOD)** - The BOD test indicates the amount of oxygen required for stabilization of the decomposable organic matter found in the sewage, sewage effluent, polluted waters or industrial wastes by aerobic biochemical action. The time and temperature used are 5 days and 20°C respectively.

**Freshet** - a flood or overflowing of a river caused by heavy rains or melted snow.

**Gallon** - denotes Imperial gallon unless otherwise noted.

**Hydrogen Ion Concentration (pH)** - The hydrogen ion concentration (pH value) of a water indicates its relative acidity or alkalinity. It is a measure of intensity rather than of quantity. A neutral water has a pH of 7.0. Higher values are in the alkaline range and the lower in the acid range.

**Oils and Ether Soluble Materials** - These include oils and all other ether soluble materials such as tarry substances and greases. The presence of these pollutants renders water difficult and sometimes impractical to treat, either for industrial or domestic use. Oils make the stream unsightly and the water unfit for bathing. They coat water craft and are a hazard to wild fowl.

**Phenolic Compounds** - Phenols and phenolic equivalents were measured by the Gibbs Method with modifications. Phenols react with chlorine to produce intensely aromatic compounds. These compounds, even when highly diluted, may give a taste and odour to the water which is variously described as medicinal, chemical or iodoform. Phenols taint fish and are toxic to fish, depending on the concentration. Normal water contains no phenolic compounds.

**Solids** - The analyses for solids include tests for total, suspended and dissolved solids. The former measures both the solids in solution and in suspension. Suspended solids indicate the measure of undissolved solids of organic or inorganic nature, whereas the dissolved solids are a measure of those solids in solution.

**Turbidity** - Turbidity is a measure of the fine suspended solids in water such as silt and finely divided organic matter. Where suspended solids values approach 20 parts per million or less, the results are usually reported as turbidity in silica units.

**Water Quality and Effluent Objectives** - The desirable objectives for all surface waters in the Province of Ontario are as follows :

5-Day BOD	- not greater than 4 ppm
M.F. Coliform Count Medial Value	- not greater than 2,400 per 100 ml.
Phenolic Equivalents - average	- not greater than 2 ppb
- maximum	- not greater than 5 ppb
pH Range	- 6.7 to 8.5

A few pertinent maximum concentration limits of contaminants in storm sewers, sewage treatment plant and industrial waste effluents are listed below. It is noted that adequate protection for surface waters, except in certain specific instances influenced by local conditions, should be provided if the following concentrations and pH range are not exceeded.

5-Day BOD	-	not greater than 15 ppm
Suspended Solids	-	not greater than 15 ppm
Phenolic Equivalents	-	not greater than 20 ppb
Ether Solubles (oil)	-	not greater than 15 ppm
pH Range	-	5.5 to 10.6

TABLE I

## ANALYTICAL RESULTS OF OUTLET SAMPLES TO LAKE NIPISSING

SAMPLING POINT NO.	LOCATION AND GENERAL DESCRIPTION	DATE	5-DAY BOD (PPM)	TOTAL (PPM)	SOLIDS SUSP. (PPM)	DISS. (PPM)	ETHER SOLUBLES (PPM)	ESTIMATED FLOW (GPM)	M.F. COLIFORM COUNT PER 100 ML.	REMARKS
LN-198.4 D	DUCHESNAY RIVER ABOVE CONFLUENCE LAKE NIPISSING	JUNE 7/61 JUNE 18/65	14. 47	54 196	6 42	48 154		-	1,250 165,000	
LN-198.9 P	ST. JOSEPH'S COLLEGE - 6" SEPTIC TANK OUTLET.	JUNE 7/61 JUNE 18/65	65. THIS SEPTIC TANK HAS BEEN TAKEN OUT OF SERVICE	250	54	196		-	1,880,000	PARTIALLY SUBMERGED
LN-199.0 P	ST. JOSEPH'S COLLEGE - WASTE OUTLET.	JUNE 7/61 JUNE 18/65	NOT SAMPLED THIS OUTFALL HAS BEEN REMOVED							
LN-199.0 P-1	ST. JOSEPH'S COLLEGE - OUTLET	JUNE 7/61 JUNE 18/65	NO FLOW NOTED THIS OUTFALL HAS BEEN REMOVED							
LN-199.1 D	CREEK AT HARRIET ST.	JUNE 7/61 JUNE 18/65	NOT SAMPLED NOT SAMPLED					1		CLEAR
LN-199.3 D	CREEK AT HARRIET ST.	JUNE 7/61 JUNE 18/65	1.5 0.9	80 220	6 15	74 205		150 100	325 200	CLEAR "
LN-199.4 D	STREAM AT HARRIET ST.	JUNE 7/61 JUNE 18/65	23 NOT SAMPLED	242	12	230		3	140,000	CLEAR
LN-199.5 W	24" CORRUGATED OUTLET TO DITCH	JUNE 7/61 JUNE 18/65	NO FLOW NOTED " " "							SEWAGE ODOUR.
	DEPT. OF HIGHWAYS - 8" TILE TO POND APPROXI- MATELY 12' x 30'	JUNE 7/61 JUNE 18/65	SEEPAGE TO LAKE INSUFFICIENT FOR SAMPLING NO FLOW NOTED							
LN-199.5 W-1	12" Ø C.I. STORM SEWER FOOT OF LAKE ST.	JUNE 18/65	NO FLOW NOTED							
LN-199.7 P	OUTLET AT FOOT MATTAWA ST. 12" Ø C.I. STORM SEWER	JUNE 7/61 JUNE 18/65	NOT LOCATED NO FLOW NOTED							
LN-199.7 D	12" CONCRETE STORM SEWER TO DITCH NORTH-WEST CORNER NIPISSING AND GORMAN STS.	JUNE 7/61 JUNE 18/65	NO FLOW NOTED " " "							



TABLE I (CONTD.)

SAMPLING POINT NO.	LOCATION AND GENERAL DESCRIPTION	D A T E	5-DAY BOD (PPM)	TOTAL (PPM)	S O L I D S SUSP. (PPM)	DISS. (PPM)	ETHER SOLUBLES (PPM)	ESTIMATED FLOW (GPM)	M.F. COLIFORM COUNT PER 100 ML.	R E M A R K S
LN-199.7 D	36" OVAL CORRUGATED STORM SEWER TO DITCH NORTH-WEST CORNER NIPISSING AND GORMAN STS.	JUNE 7/61	2.2	204	12	192		50	1,100	
		JUNE 18/65	22	1,048	143	905		50	13,400	
LN-199.8 W	15" CONCRETE STORM SEWER TIMMINS ST.	JUNE 7/61	NO FLOW NOTED							
		JUNE 18/65	" " "							
LN-200.1 W	STORM SEWER TO WOODEN BOX CULVERT TO DITCH	JUNE 7/61	2.4	550	40	510		1	140,000	
		JUNE 18/65	FLOW INSUFFICIENT FOR SAMPLING							
LN-200.2 W	24" CONCRETE STORM SEWER - 10TH ST.	JUNE 7/61	1.8	284	14	270		15	21,000	
		JUNE 18/65	2.2	456	7	449		10	39,000	
LN-200.4 W-1	30" CONCRETE STORM SEWER FOREN ST.	JUNE 18/65	56	638	74	564		25	20	
LN-200.4 W	16" CAST IRON STORM SEWER - FOREN ST.	MAY 31/61	68	414	38	376			24,000*	
		JUNE 7/61	26	580	232	328		25	2,600,000	
		JUNE 18/65	NO FLOW NOTED							
LN-200.6 P	6" STEEL OUTLET - C.P.R.	JUNE 7/61	NO FLOW NOTED							
		JUNE 18/65	" " "							
LN-200.6 I	24" CORRUGATED OUTLET - C.P.R.	MAY 31/61	11	468	26	442			2,400*	OIL -BRIGHT BANDS OF COLOUR
		JUNE 7/61	12	412	30	382			21,000	
		JUNE 18/65	22	646	22	624	8.0	5	2,100	
LN-200.6 P-1	12" CAST IRON OUTLET - C.P.R.	MAY 31/61	6.8	62	22	40			2,400+*	
		JUNE 7/61	4.6	122	12	110			50,500	
		JUNE 18/65	4.0	126	2	124			240,000 - 24,000*	
LN-200.7 P	12" CAST IRON OUTLET	MAY 31/61	1.8	348	74	272			1,600*	
		JUNE 7/61	1.2	330	10	320			4	
		JUNE 18/65	FLOW INSUFFICIENT FOR SAMPLING							

TABLE I (CONTD.)

SAMPLING POINT No.	LOCATION AND GENERAL DESCRIPTION	DATE	5-DAY BOD (PPM)	TOTAL (PPM)	S O L I D S		ETHER SOLUBLES (PPM)	ESTIMATED FLOW ( GPM )	M.F. COLIFORM COUNT PER 100 ML	REMARKS
					SUSP. (PPM)	DISS. (PPM)				
LN-200.8 P	6" CAST IRON OUTLET	MAY 31/61	0.7	58	4	54			0*	
		JUNE 7/61	1.9	66	6	60		$\frac{1}{4}$	2	
		JUNE 18/65	NO FLOW NOTED							
LN-200.8 I	2-6" STEEL OUTLETS FROM 2 - COMPT. WOODEN TANK C.P.R.	MAY 31/61	5.6	162	12	150		3	24,000+*	
		JUNE 7/61	2.8	388	16	372			3,300	
		JUNE 18/65	8.0	1,090	37	1,053		1	110,000-7,500*	
LN-200.8 P-1	6" CAST IRON OUTLET FROM TANK C.P.R.	MAY 31/61	20	108	24	84			24,000+*	SEWAGE ODOUR
		JUNE 7/61	6.4	102	28	74			3,800	
		JUNE 18/65	140	470	158	312		1	240,000-240,000*	
LN-200.9 I	EFFLUENT FROM OIL SEPARATOR - C.P.R.	MAY 31/61	14	794	58	736			210*	OIL SLICK
		JUNE 7/61	16	1,038	40	998			40	
		JUNE 18/65	7.4	886	10	876	0.0	5	110,000-23*	
LN-201.0 D	DITCH FROM C.P.R.	MAY 31/61	2.4	716	66	650			10*	
		JUNE 7/61	5	582	34	548			150	
		JUNE 18/65	NO FLOW NOTED							
LN-201.2 P	18" CONCRETE OUTLET - RAHN METALS LTD., REGINA ST.	MAY 31/61	2.4	602	54	548			22*	OIL SLICK
		JUNE 7/61	7	224	8	216			40	
		JUNE 18/65	0.9	90	3	87	2.3	2	9,300-930*	
LN-201.2 W	12" CORRUGATED STORM SEWER - REGINA ST.	MAY 31/61	2.4	602	54	548			22*	
		JUNE 7/61	2.0	570	44	526			50	
		JUNE 18/65	FLOW INSUFFICIENT FOR SAMPLING							
LN-201.3 T	NORTH BAY S.T.P. OUTFALL -36" CORRUGATED	JUNE 18/65	SEE TABLE 3							CLEAR
LN-201.4 D	CHIPPEWA CREEK AT QUEEN ST.	JUNE 18/65	SEE TABLE 2 SAMPLING POINT NO. FC-0.0							

TABLE I (CONTD.)

<u>SAMPLING POINT No.</u>	<u>LOCATION AND GENERAL DESCRIPTION</u>	<u>D A T E</u>	<u>5-DAY BOD (PPM)</u>	<u>TOTAL (PPM)</u>	<u>S O L I D S</u>		<u>ETHER SOLUBLES (PPM)</u>	<u>ESTIMATED FLOW ( GPM )</u>	<u>M.F. COLIFORM COUNT PER 100 ML</u>	<u>R E M A R K S</u>
					<u>SUSP. (PPM)</u>	<u>DISS. (PPM)</u>				
LN-201.7 W	12" CONCRETE STORM SEWER - CHARLES ST.	JUNE 7/61	NO FLOW NOTED							SEWAGE ODOUR REPORTED AT TIMES.
		JUNE 18/65	NO FLOW NOTED							
LN-201.8 I	30" CONCRETE DRAIN FROM O.N.R. - JUDGE AVE.	JUNE 7/61	65	662	50	612			110,000	PARTIALLY SUBMERGED
		JUNE 18/65	43	236	60	176	13.3		2,300-23*	

\* M.P.N. PER 100 C.C.

TABLE 2

ANALYTICAL RESULTS OF OUTLET SAMPLES TO CHIPPEWA CREEK

SAMPLING POINT NO.	LOCATION AND GENERAL DESCRIPTION	DATE	5-DAY BOD (PPM)	TOTAL (PPM)	S O L I D S		ETHER SOLUBLES (PPM)	ESTIMATED FLOW ( GPM )	M.F. COLIFORM COUNT PER 100 ML	REMARKS
					SUSP. (PPM)	DISS. (PPM)				
FC-2.6	CHIPPEWA CREEK AT HIGHWAY No. 17	JUNE 7/61	2.2	88	10	78			950	
		JUNE 18/65	1.3		2	106			380	
FC-2.1 W	36" CONCRETE STORM SEWER - DALE ST.	JUNE 7/61	NOT SAMPLED							
		JUNE 18/65	NO FLOW NOTED							
FC-1.8 W	8" Ø ASBESTOS STORM SEWER - CASSELLS ST.	JUNE 7/61	NO FLOW NOTED							
		JUNE 18/65	NO FLOW NOTED							
FC-1.5 W	18" CORRUGATED STORM SEWER TO DITCH	JUNE 7/61	FLOW NOT SUFFICIENT FOR SAMPLING							
		JUNE 18/65	FLOW NOT SUFFICIENT FOR SAMPLING							
FC-1.5	STREAM FROM MUD LAKE BELOW BY-PASS	JUNE 7/61	2.1	94	4	90			250	
		JUNE 18/65	2.9	172	2	170			23,000	
FC-1.2 W	18" Ø CONCRETE STORM SEWER - CHIPPEWA ST.	JUNE 7/61	NO FLOW NOTED							
		JUNE 18/65	NO FLOW NOTED							
FC-1.2 R	CORRUGATED BY-PASS CHIPPEWA SEWAGE PUMPING STATION	JUNE 7/61	NO FLOW NOTED							
		JUNE 18/65	NO FLOW NOTED							
FC-1.2 W-1	48" Ø CONCRETE STORM SEWER - CHIPPEWA ST.	JUNE 7/61	8.4	294	16	278			66,000	PARTIALLY SUBMERGED
		JUNE 18/65	1.5	296	1	295			39,000	
FC-1.2 W-2	18" Ø CONCRETE STORM SEWER - CHIPPEWA ST.	JUNE 18/65	NO FLOW NOTED							
FC-1.1 W	14" Ø CONCRETE STORM SEWER DUKE AND FISHER STS.	JUNE 18/65	NO FLOW NOTED							
FC-1.1 W-1	8" Ø CONCRETE STORM SEWER DUKE AND FISHER STS.	JUNE 18/65	NO FLOW NOTED							

TABLE 2 (CONTD.)

SAMPLING POINT NO.	LOCATION AND GENERAL DESCRIPTION	DATE	5-DAY	TOTAL	S O L I D S		ETHER SOLUBLES	ESTIMATED FLOW	M.F. COLIFORM	REMARKS
			BOD (PPM)		SUSP. (PPM)	DISS. (PPM)				
FC-1.0 W	15" Ø CONCRETE STORM SEWER - FISHER ST.	JUNE 7/61	NO FLOW NOTED							
		JUNE 18/65	NO FLOW NOTED							
FC-0.8 WS	36" Ø CORRUGATED STORM SEWER - 2ND AVE.	JUNE 7/61	42.0	316	50	268			3,260,000	PARTIALLY SUBMERGED SEWAGE VISIBLE
		JUNE 18/65	8.0	202	25	177			2,560,000	
FC-0.7	CHIPPEWA CREEK AT JOHN ST.	JUNE 7/61	1.8	148	62	84			122,000	
		JUNE 18/65	1.9	150	32	118			124,000	
FC-0.6 DS	DITCH RECEIVING SEWAGE FROM STORM SEWER - METCALFE ST.	JUNE 7/61	15	230	30	200			385,000	
		JUNE 18/65	2.4	436	76	330			1,710	
FC-0.4 W	21" Ø GLAZED TILE STORM SEWER - MCINTYRE ST.	JUNE 7/61	FLOW NOT SUFFICIENT FOR SAMPLING							
		JUNE 18/65	180	416	278	138	5		77,000,000	EVIDENCE OF SEWAGE
FC-0.3 W	15" Ø CONCRETE STORM SEWER	JUNE 7/61	FLOW NOT SUFFICIENT FOR SAMPLING							
		JUNE 18/65	53	322	46	276	2		240,000-240,000*	
FC-0.3 T	SANITARY OUTFALL - MAIN AND GOLF STS. SEPTIC TANK.	MAY 31/61	280	576	124	452			24,000*	SUBMERGED OUTLET
		JUNE 7/65	TANK WAS BEING CLEANED AT THE TIME OF SURVEY AND SEWAGE FLOW WAS BY- PASSING TANK.							
		JUNE 18/65	FLOW WAS BEING DIRECTED TO THE SANITARY SEWER.							
FC-0.3 P	4" Ø PRIVATE DRAIN	JUNE 7/61	FLOW NOT SUFFICIENT FOR SAMPLING							
		JUNE 18/65	NO FLOW NOTED							
FC-0.3 R	36" Ø CONCRETE STORM SEWER - OAK ST.	JUNE 7/61	NO FLOW NOTED							
		JUNE 18/65	FLOW INSUFFICIENT FOR SAMPLING							

TABLE 2 (CONTD.)

SAMPLING POINT NO.	LOCATION AND GENERAL DESCRIPTION	DATE	5-DAY BOD (PPM)	TOTAL (PPM)	S O L I D S		ETHER SOLUBLES (PPM)	ESTIMATED FLOW ( GPM )	M.F. COLIFORM COUNT PER 100 ML	REMARKS
					SUSP. (PPM)	DISS. (PPM)				
FC-0,3 I	12" Ø CONCRETE PRIVATE DRAIN.	JUNE 7/61	2.1	204	24	180		2	121,000	OILY
		JUNE 18/65	18.0	280	75	205			15,000-9,300*	
FC-0,2 T	15" Ø GLAZED TILE SANITARY OUTFALL FROM SEPTIC TANK NEAR WEST END OF GORE ST.	MAY 31/61	145	358	156	202		60	24,000+*	APPEARANCE RAW SEWAGE
		JUNE 7/61	85	320	86	234			10,700,000	
		JUNE 18/65	FLOW HAS BEEN DIRECTED TO THE SANITARY SEWER.							
FC-0,2 P	WOODEN BOX DRAIN	JUNE 7/61	NO FLOW NOTED							
		JUNE 18/65	NO FLOW NOTED							
FC-0,0	CHIPPEWA CREEK AT QUEEN ST.	1961								
		APRIL 28	2.0	270	-	-			-	
		MAY 3	3.6	162	28	134			-	
		15	50.0	536	420	116			-	
		25	4.6	122	38	84			-	
		30	-	-	-	-			174,000	
		31	7.0	126	46	80			-	
		JUNE 1	6.0	86	8	78			56,000	
		5	-	-	-	-			19,000	
		6	2.7	106	30	76			12,500	
		7	3.6	78	16	62			3,100	
		13	-	-	-	-			204,000	
		1965								
		JUNE 17	2.5	112	6	106			24,000-4,300*	

\* MPN PER 100 CC.

TABLE 3

NORTH BAY SEWAGE TREATMENT PLANT

SUMMARY OF ANALYSES

<u>DATE</u>	<u>R A W</u>		<u>FINAL EFFLUENT</u>	
	<u>5-Day BOD</u>	<u>Susp. Solids</u>	<u>5-Day BOD</u>	<u>Susp. Solids</u>
	<u>(PPM)</u>	<u>(PPM)</u>	<u>(PPM)</u>	<u>(PPM)</u>
1965				
Jan.	145	264	11	6
Feb.	-	-	-	-
Mar.	96	147	8	11
Apr.	-	-	-	-
May	64	156	1.4	6
June	-	-	-	-
July	98	226	6.6	11
Aug.	200	202	27	8

Average 5-Day BOD Reduction - 91.0%

Average Susp. Solids Reduction - 95.6%

TABLE 4

LAKE NIPISSING SAMPLING POINTS

SUMMARY OF BACTERIOLOGICAL RESULTS

<u>SAMPLING POINT NO.</u>	<u>LOCATION</u>	<u>1961</u>	<u>1965</u>	
		<u>M.F. COLIFORM COUNT/100 ML</u>	<u>TOTAL COLIFORM ORGANISMS</u>	<u>MPN E. COLI</u>
1	100 ft. from Shore at Lake St.	79	23	390
2	100 ft. from Shore between 9 and 10th Sts.	31	430	930
3	100 ft. from Shore north of Government Dock	110	4,300	7,500
4	75 ft. off west end Government Dock.	24	150	150
5	250 ft. from shore south of Government Dock	120	430	9,300
6	100 ft. from shore opposite C.P.R. Roundhouse	3	1,500	1,500
7	100 ft. from shore at Regina St.	0	2,300	2,300
8	100 ft. from shore opposite WPCP	120	2,300	9,300
9	1,000 ft. from Shore over WPCP outlet.	3	43	43
10	100 ft. from mouth of Chippewa Creek	4,100	750	750
11	100 ft. from shore at Amelia Park.	6,800	23	230
12	South end of Amelia Park in 3 ft. of water	6,400	23	430
13	Middle of Amelia Park in 3 ft. of water.	*50,688	93	930
14	North end of Amelia Park in 3 ft. of water.	7,200	43	9,300



TABLE 4 (CONTD.)

<u>SAMPLING POINT NO.</u>	<u>LOCATION</u>	<u>1961</u>	<u>TOTAL COLIFORM ORGANISMS</u>	<u>1965</u>
		<u>M.F. COLIFORM COUNT/100 ML.</u>		<u>MPN E. COLI</u>
15	Beach in Front of Plant	*34,783	24,000	24,000
16	West End of Fill Over Plant Outfall	*4,124	24,000	24,000
17	Foot of Regina St.	*815	930	2,300

\*Denotes Average Results.

TABLE 5

TROUT LAKE SAMPLING POINTS

SUMMARY OF BACTERIOLOGICAL EXAMINATION RESULTS

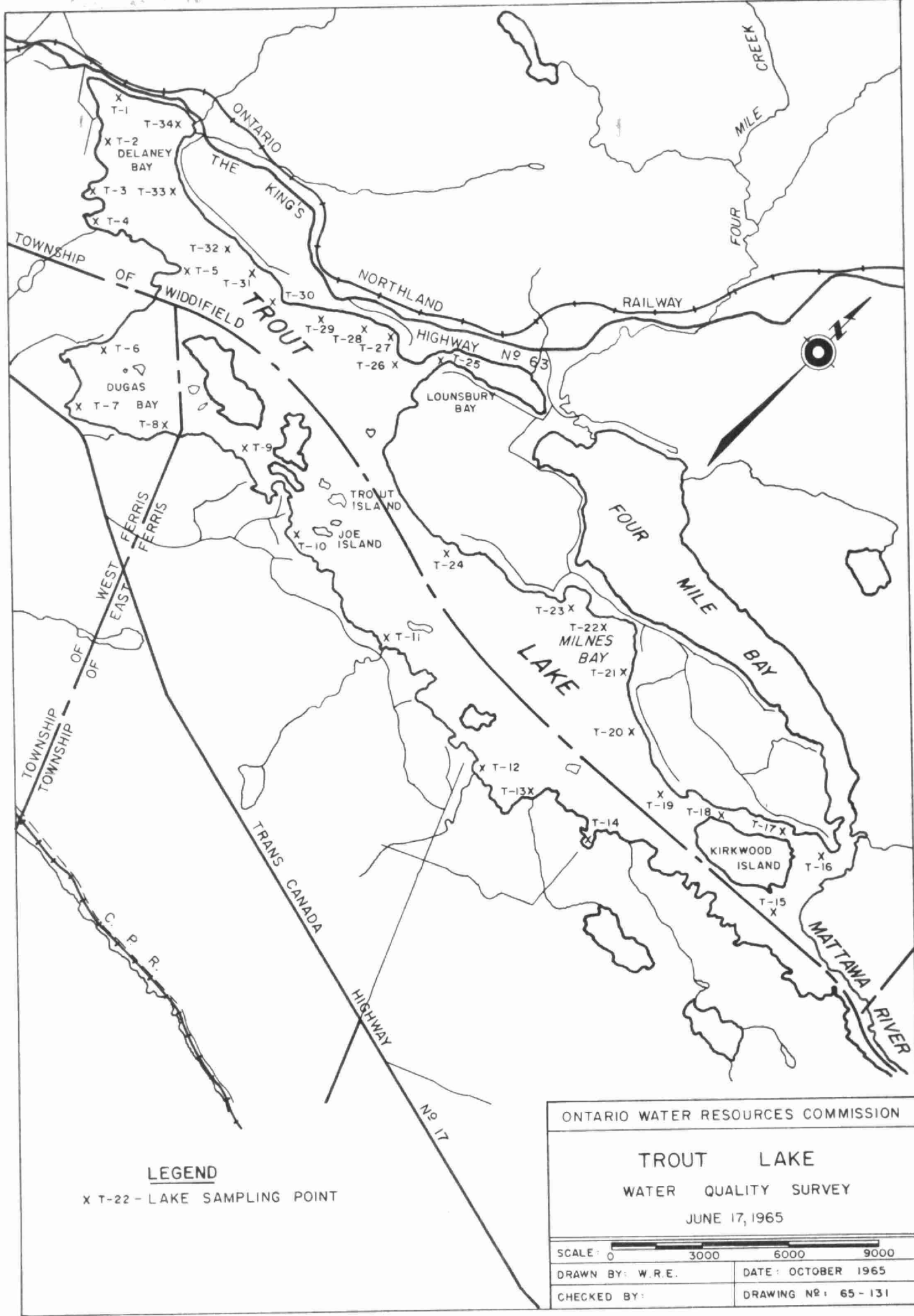
<u>SAMPLING POINT NO.</u>	<u>LOCATION</u>	<u>1965</u>	
		<u>MPN</u>	
		<u>TOTAL COLIFORM ORGANISMS/100 c.c.</u>	<u>E.COLI /100c.c.</u>
T-1	100 ft. from Shore - Hill Crawford Marina.	23	3.6
T-2	Over North Bay Waterworks Intake	9.1	0
T-3	Mouth of Stream from Nekik Lake	43	43
T-4	Mouth of Stream from McLean Lake	9.1	3.6
T-5	Just off Pilot Point	43	0
T-6	Dugas Bay	3.6	3.6
T-7	Dugas Bay	0	0
T-8	Dugas Bay	0	0
T-9	Just off mainland -east end of Hemlock Is.	0	0
T-10	50 ft. off shore from Camp Ontario	0	0
T-11	Mouth of Creek draining inland lake	9.1	0
T-12	Trout Lake at mouth of creek	9.1	0
T-13	Mouth of Creek draining Inland Lake	23	9
T-14	Inlet just south-east of Rolph Island	23	9.1
T-15	Mouth of the Mattawa River	9.1	0
T-16	Mouth of four mile Bay	3.6	0
T-17	North-east end of Kirkwood Island	9.1	0
T-18	South-west end of Kirkwood Island	0	0

TABLE 5 (CONTD.)

1965

MPN

<u>SAMPLING POINT NO.</u>	<u>LOCATION</u>	<u>TOTAL COLIFORM ORGANISMS/100c.c.</u>	<u>E. COLI/ 100 c.c.</u>
T-19	Trout Lake	9.1	3.6
T-20	Trout Lake	23	0
T-21	Milnes Bay	0	0
T-22	Milnes Bay	9.1	0
T-23	Milnes Bay	9.1	0
T-24	Trout Lake	3.6	0
T-25	Mouth of Lounsbury Bay	0	0
T-26	Trout Lake	0	0
T-27	Trout Lake	43	9.1
T-28	Trout Lake	3.6	0
T-29	Trout Lake	9.1	3.6
T-30	Just off Doran Point	9.1	0
T-31	Trout Lake	3.6	0
T-32	Trout Lake	3.6	3.6
T-33	Trout Lake	3.6	3.6
T-34	Delaney Bay	3.6	3.6



**LEGEND**  
X T-22 - LAKE SAMPLING POINT

ONTARIO WATER RESOURCES COMMISSION	
TROUT LAKE	
WATER QUALITY SURVEY	
JUNE 17, 1965	
SCALE: 0 3000 6000 9000	
DRAWN BY: W.R.E.	DATE: OCTOBER 1965
CHECKED BY:	DRAWING NO: 65-131

TABLE 6

CITY OF NORTH BAY-AMELIA PARK BEACH

NORTH BAY WATER POLLUTION CONTROL PLANT

FINAL EFFLUENT FLOW DIFFUSION STUDY IN LAKE NIPISSING

ONTARIO DEPARTMENT OF HEALTH

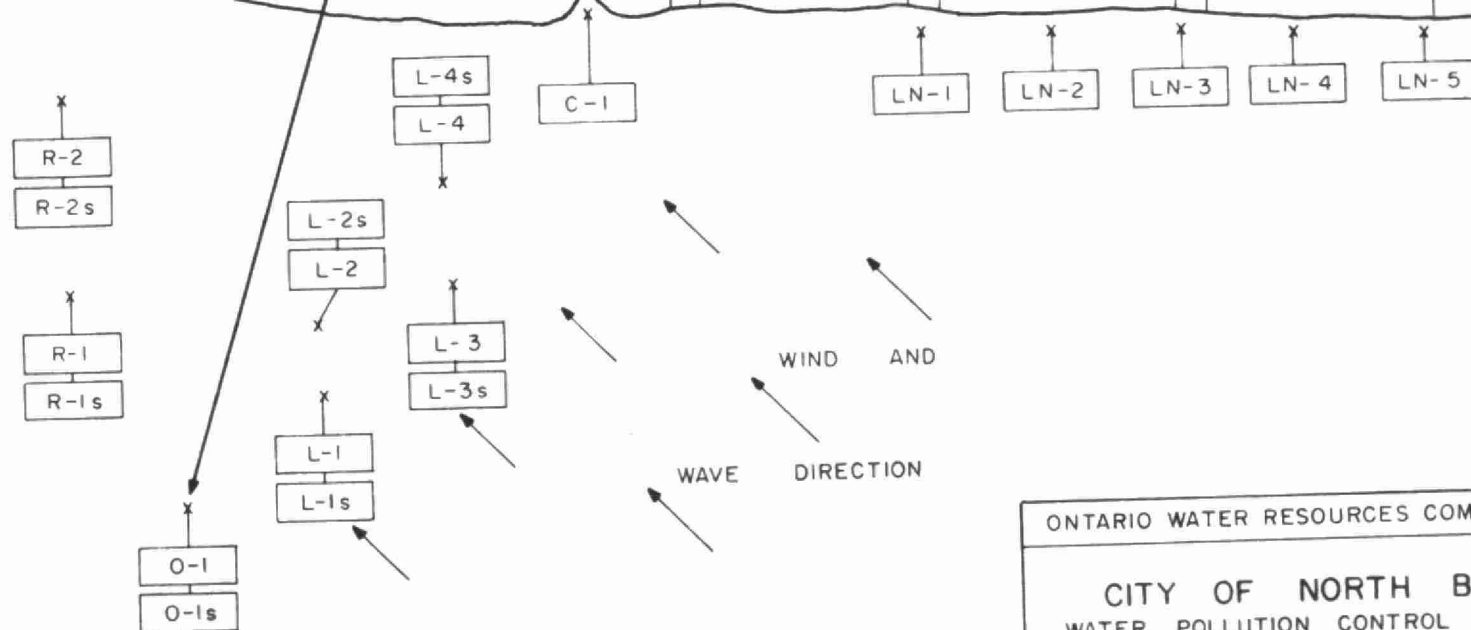
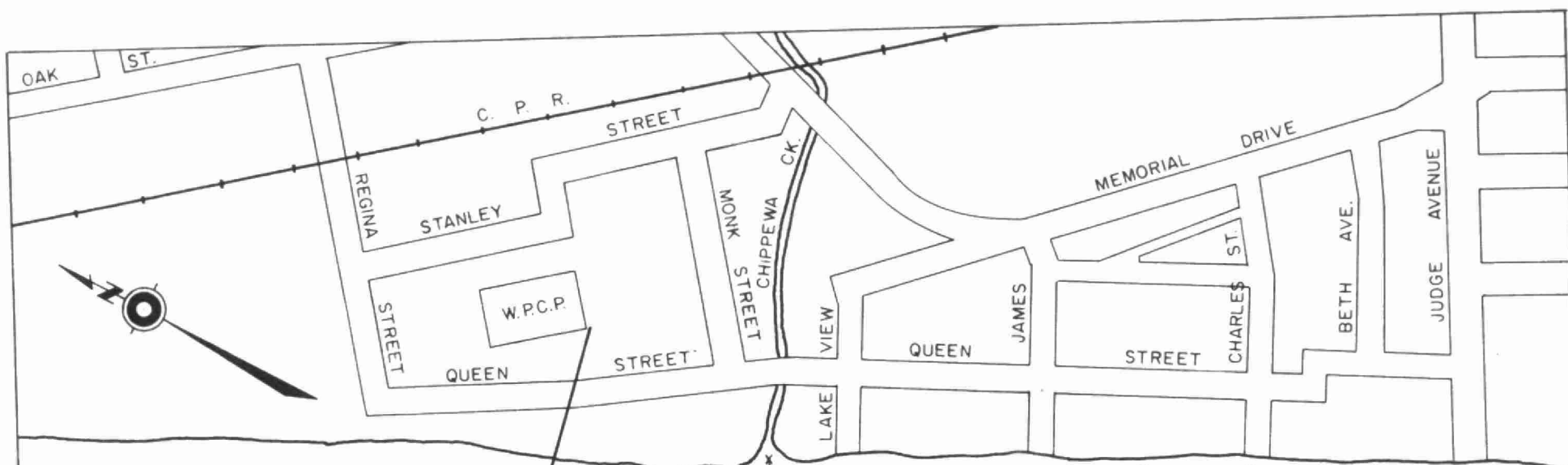
NORTH BAY LABORATORY BRANCH

AUGUST 18, 1965

<u>SAMPLING POINT NO.</u>	<u>LOCATION</u>	<u>MPN</u>	
		<u>TOTAL COLIFORM ORGANISMS/100 c.c.</u>	<u>E.COLI/ 100 c.c.</u>
0-1	Lake Nipissing at WPCP Outfall- Depth	930	230
0-1S	Lake Nipissing at WPCP Outfall-Surface	750	430
L-1	Lake Nipissing 100 Yd. South-East of WPCP Outfall - Depth.	9,300	2,300
L-1S	Lake Nipissing 100 Yd. South-East of WPCP Outfall - Surface.	1,500	1,500
L-2	Lake Nipissing 100 Yd. South-East of WPCP Outfall - 50 Yd. East of L-1 and L-1s - Depth.	15,000	9,300
L-2s	Lake Nipissing 100 Yd. South-East of WPCP Outfall - 50 Yd. East of L-1 and L-1s - Surface.	46,000	4,300
L-3	Lake Nipissing 200 Yd. South-East of WPCP Outfall - Depth.	2,300	2,300
L-3s	Lake Nipissing 200 Yd. South-East of WPCP Outfall - Surface.	2,300	430
L-4	Lake Nipissing 200 Yd. South-East of WPCP Outfall - 50 Yd. East of L-3 and L-3s - Depth.	24,000	24,000
L-4s	Lake Nipissing 200 Yd. South-East of WPCP Outfall - 50 Yd. East of L-3 and L3s - Surface	46,000	24,000
C-1	Chippewa Creek at the Mouth	46,000	46,000

TABLE 6 (CONTD.)

<u>SAMPLING POINT NO.</u>	<u>LOCATION</u>	<u>TOTAL COLIFORM ORGANISMS/100c.c.</u>	<u>E. COLI/ 100 c.c.</u>
LN-1	Amelia Park Beach Area	24,000	2,300
LN-2	Amelia Park Beach Area	9,300	4,300
LN-3	Amelia Park Beach Area	24,000	24,000
LN-4	Just South of Amelia Park Beach Area	9,300	230
LN-5	Lake Nipissing at Judge Ave.	24,000	4,300
R-1	Lake Nipissing 100 Yd. North-East of WPCP Outfall - Depth.	1,500	230
R-1s	Lake Nipissing 100 Yd. North-East of WPCP Outfall - Surface	750	230
R-2	Lake Nipissing 300 Yd. North-East of WPCP Outfall - Depth.	24,000	24,000
R-2s	Lake Nipissing 300 Yd. North-East of WPCP Outfall - Surface.	9,300	9,300



# **LEGEND**

- R-1 - LAKE SAMPLING POINT
- R-1s - LAKE SAMPLING POINT (SUBSURFACE)

ONTARIO WATER RESOURCES COMMISSION

**CITY OF NORTH BAY**  
 WATER POLLUTION CONTROL PLANT  
 FLOW DIFFUSION STUDY  
 AUGUST 18 TH.

SCALE: 1" = 400'

DRAWN BY: W.R.E.

DATE: NOVEMBER 1965

CHECKED BY:

DRAWING NO: 65-137

TABLE 7

CITY OF NORTH-BAY-AMELIA PARK BEACH  
NORTH BAY WATER POLLUTION CONTROL PLANT  
FINAL EFFLUENT FLOW DIFFUSION STUDY IN LAKE NIPISSING

ONTARIO DEPARTMENT OF HEALTH

NORTH BAY LABORATORY BRANCH

AUGUST 19, 1965

<u>SAMPLING POINT NO.</u>	<u>LOCATION</u>	<u>TOTAL COLIFORM ORGANISMS/100 c.c.</u>	<u>MPN E. COLI/ 100 c.c.</u>
0-1	Lake Nipissing at WPCP Outfall-Depth	7,500	4,300
0-1s	Lake Nipissing at WPCP Outfall-Surface	2,300	2,300
L-1	Lake Nipissing 100 Yd. South-East of WPCP Outfall - Depth	15,000	430
L-1s	Lake Nipissing 100 Yd. South-East of WPCP Outfall - Surface	4,300	2,300
L-2	Lake Nipissing 100 Yd. South-East of WPCP Outfall - 50 Yd. East of L-1 and L-1s - Depth.	24,000	2,300
L-2s	Lake Nipissing 100 Yd. South-East of WPCP Outfall - 50 Yd. East of L-1 and L-1s - Surface.	9,300	2,300
L-3	Lake Nipissing 200 Yd. South-East of WPCP Outfall - Depth.	4,300	750
L-3s	Lake Nipissing 200 Yd. South-East of WPCP Outfall - Surface.	2,300	2,300
L-4	Lake Nipissing 200 Yd. South-East of WPCP Outfall - 50 Yd. East of L-3 and L-3s - Depth.	1,500	930
L-4s	Lake Nipissing 200 Yd. South-East of WPCP Outfall - 50 Yd. East of L-3 & L-3s - Surface.	4,300	4,300



TABLE 7 (CONTD.)

<u>SAMPLING POINT NO.</u>	<u>LOCATION</u>	<u>TOTAL COLIFORM ORGANISMS/100 c.c.</u>	<u>MPN E. COLI/ 100 c.c.</u>
L-5	Lake Nipissing 300 Yd. South-East of WPCP Outfall - Surface.	4,300	4,300
C-1	Chippewa Creek at the Mouth	110,000	110,000
LN-1	Amelia Park Beach Area	9,300	2,300
LN-2	Amelia Park Beach Area	9,300	9,300
LN-3	Amelia Park Beach Area	4,300	2,300
LN-4	Lake Nipissing just south of Amelia Park Beach.	24,000	930
LN-5	Lake Nipissing at Judge Ave.	4,300	4,300
R-1	Lake Nipissing 100 Yd. North-East of WPCP Outfall - Depth.	9,300	930
R-1s	Lake Nipissing 100 Yd. North-East of WPCP Outfall - Surface.	4,300	430
R-2	Lake Nipissing 300 Yd. North-East of WPCP Outfall - Depth.	2,300	430
R-2s	Lake Nipissing 300 Yd. North-East of WPCP Outfall - Surface.	2,300	2,300

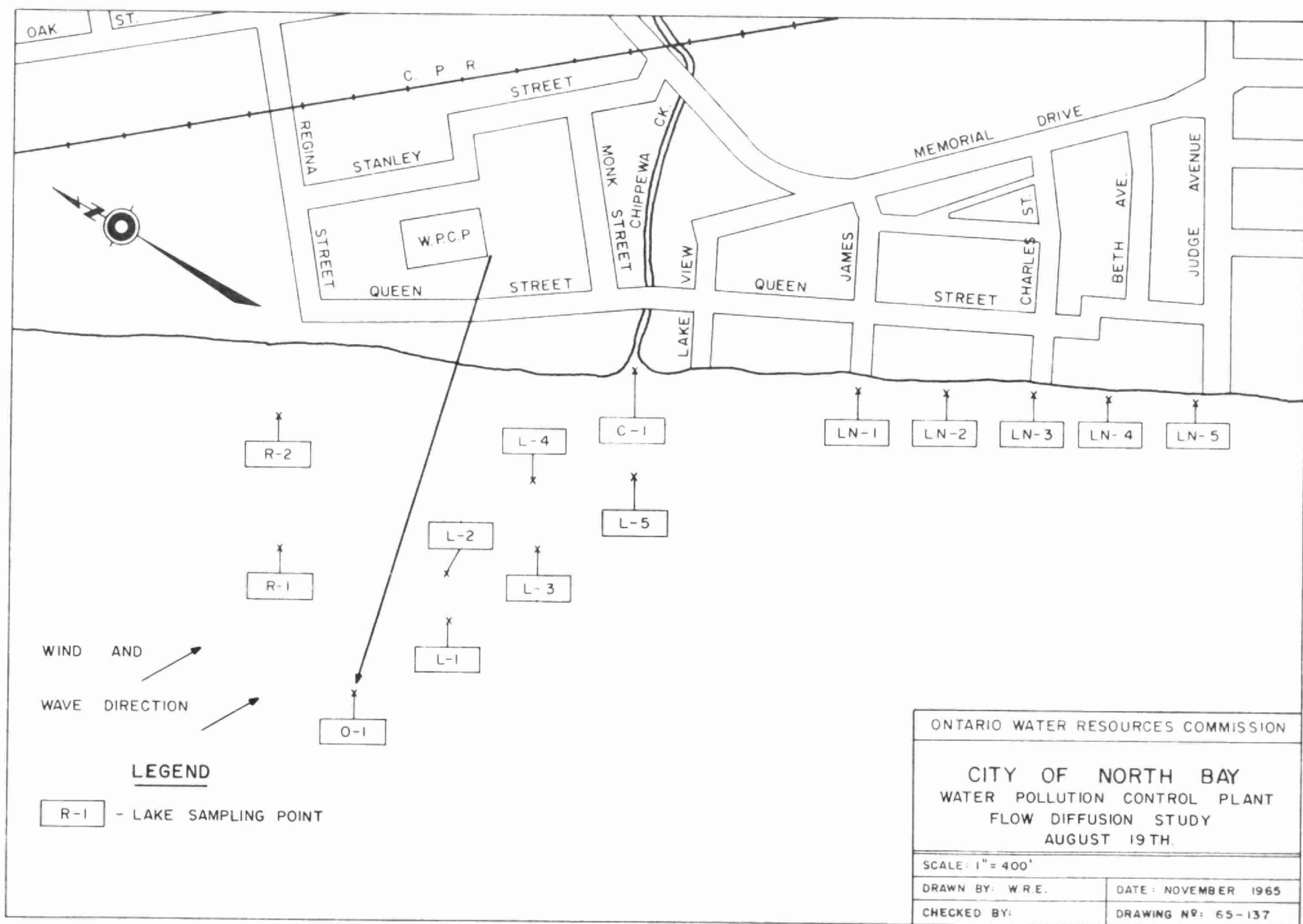


TABLE 8

CITY OF NORTH-BAY AMELIA PARK BEACH  
NORTH BAY WATER POLLUTION CONTROL PLANT  
FINAL EFFLUENT FLOW DIFFUSION STUDY IN LAKE NIPISSING

ONTARIO DEPARTMENT OF HEALTH

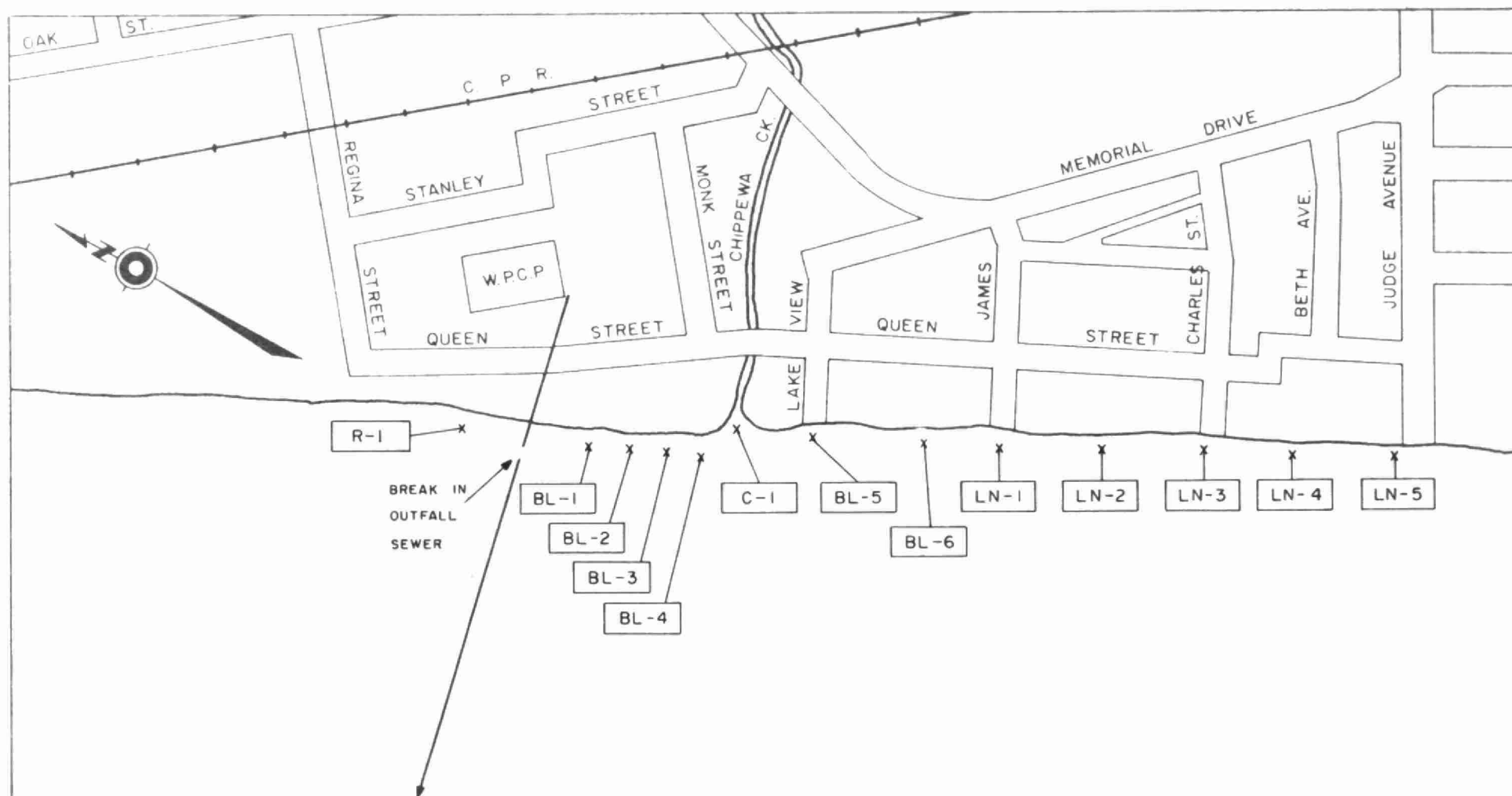
NORTH BAY LABORATORY BRANCH

AUGUST 20, 1965

<u>SAMPLING POINT NO.</u>	<u>LOCATION</u>	<u>MPN</u>	
		<u>TOTAL COLIFORM ORGANISMS/100c.c.</u>	<u>E.COLI/ 100 c.c.</u>
BR-1	Lake Nipissing 50 Yd. North of Break in WPCP Outfall - 25 Yd. from the Shoreline.	930	230
BL-1	Lake Nipissing 50 Yd. South of Break in WPCP Outfall - 25 Yd. from the Shoreline	24,000	2,300
BL-2	Lake Nipissing 100 Yd. South of Break in WPCP Outfall - 25 Yd. from the Shoreline.	24,000	2,300
BL-3	Lake Nipissing 150 Yd. South of Break in WPCP Outfall - 25 Yd. from the Shoreline.	24,000	2,300
BL-4	Lake Nipissing 200 Yd. South of Break in WPCP Outfall - 25 Yd. from the Shoreline.	9,300	23
C-1	Chippewa Creek at the Mouth	240,000	46,000
BL-5	Lake Nipissing 300 Yd. South of Break in WPCP Outfall - 25 Yd. from the Shoreline.	430	23
BL-6	Lake Nipissing 350 Yd. South of Break in WPCP Outfall - 25 Yd. from the Shoreline.	4,300	23
LN-1	Amelia Park Beach Area	4,300	230

TABLE 8 (CONTD.)

<u>SAMPLING POINT NO.</u>	<u>LOCATION</u>	<u>MPN</u>	
		<u>TOTAL COLIFORM ORGANISMS/100 c.c.</u>	<u>E. COLI/ 100 c.c.</u>
LN-2	Amelia Park Beach Area	2,300	2,300
LN-3	Amelia Park Beach Area	2,300	230
LN-4	Just South of Amelia Park Beach Area	2,300	2,300
LN-5	Lake Nipissing at Judge Ave.	2,300	2,300



# LEGEND

BL-3 - LAKE SAMPLING POINT

ONTARIO WATER RESOURCES COMMISSION

CITY OF NORTH BAY  
WATER POLLUTION CONTROL PLANT  
FLOW DIFFUSION STUDY  
AUGUST 20 TH.

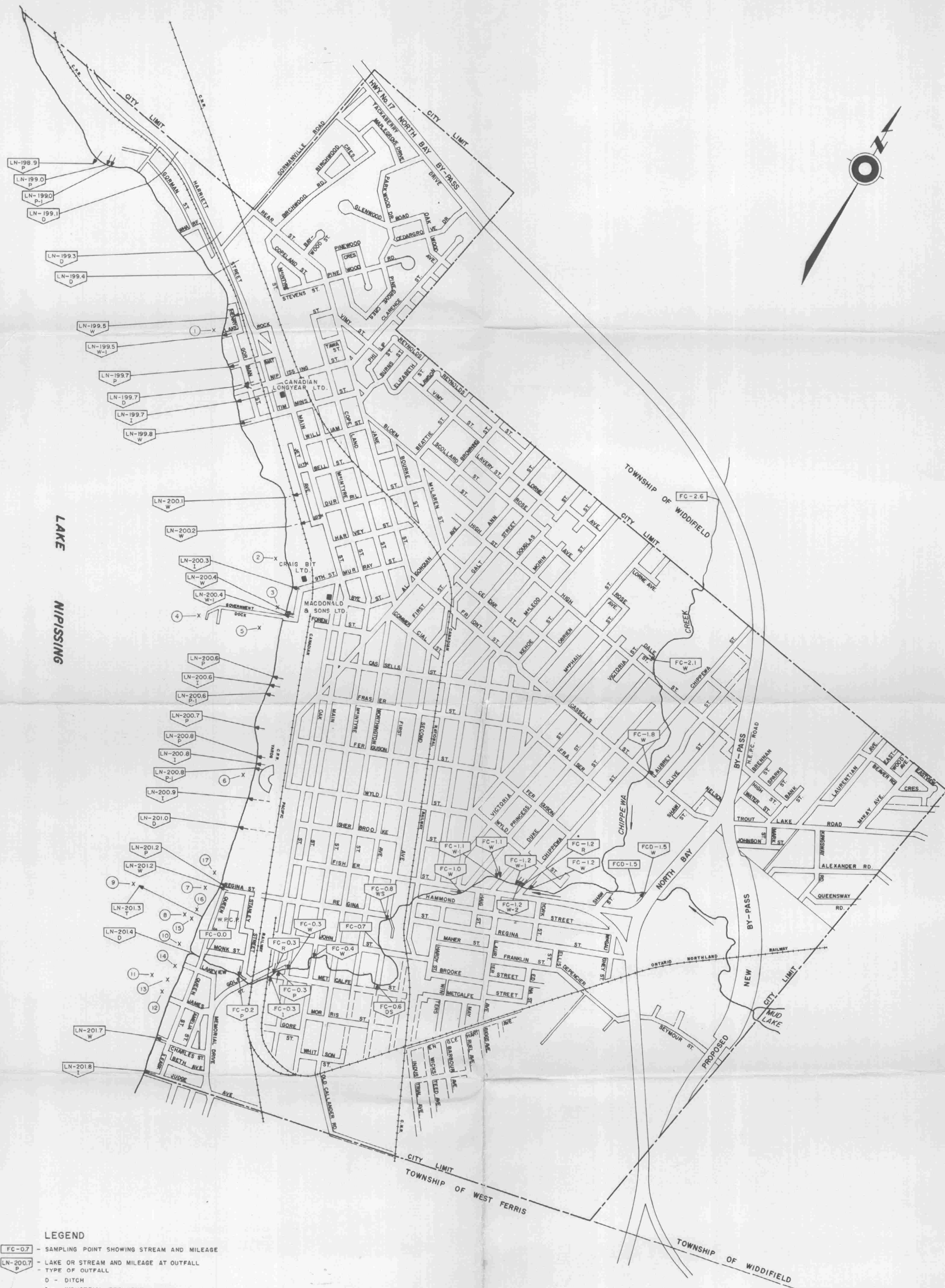
SCALE: 1" = 400'

DRAWN BY: W.R.E.

DATE: NOVEMBER 1965

CHECKED BY:

DRAWING NO: 65-137



# LEGEND

- FC-0.7 - SAMPLING POINT SHOWING STREAM AND MILEAGE
- LN-200.7 - LAKE OR STREAM AND MILEAGE AT OUTFALL
- TYPE OF OUTFALL
- D - DITCH
- I - INDUSTRIAL EFFLUENT
- P - PRIVATE SEWER
- R - RELIEF SEWER
- S - UNTREATED SEWAGE
- T - TREATMENT PLANT EFFLUENT
- W - STORM SEWER
- 11 - X - LAKE SAMPLING POINT

ONTARIO WATER RESOURCES COMMISSION

## CITY OF NORTH BAY WATER POLLUTION SURVEY OCT. 1965

SCALE: 1" = 800'

DRAWN BY: W. R. E.

DATE: JUNE 1961

CHECKED BY:

DRAWING No. 61-59